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NOTES ON THE MAMMAL FAUNA OF TSUSHIMA AND IKI ISLANDS, JAPAN

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The principal papers on the mammals of Tsushima were published by Mr. O. Thomas (Ann. & Mag. N. H., (6), XIX, p. 161, 1897; P. Z. S., p. 182, 1905; op. cit., pp. 47-54, 1908). Mr. N. Teraoka and I obtained 10 species and subspecies of mammals on that island during the last year. I have been able to add 2 species to those hitherto known from it, bringing the total number of forms to 14.

On Iki Island Mr. Thomas writes that "After Tsushima Mr. Anderson visited the Iki and Goto Islands, the resulting collections proving that those groups are absolutely similar to S. W. Japan in their mammal fauna" (P. Z. S., 1908, p. 49). Mr. H. Orii collected mammals on Iki Island and Mr. Teraoka and I also visited the island and brought back a small number (3 species) of mammals.

All the known mammal fauna of Tsushima and Iki Islands are listed and noted below.

The * mark indicates the new additions to the mammal list of both islands.

FAM. TALPIDÆ

1. *Urotrichus talpoides adversus* Thomas.—Anderson obtained this form on Tsushima (Thomas, P. Z. S., 1908, p. 49).

2. *Mogera wogura kanai* Thomas.—A specimen was presented by Mr. S. Fukagawa. It was obtained at Izugahara, Tsushima, date unknown. Mr. Teraoka collected a specimen at Nukadake-mura, Tsushima, October 27. Skulls from the above specimens are both broken. The coloration of body in Tsushima specimens varies from very pale (greyish brown or even golden color) to deep reddish brown. Holst obtained a specimen on Tsushima (Thomas, P. Z. S., 1908, p. 49).

FAM. SORICIDÆ

3. *Crocidura coreæ* Thomas.—Anderson collected it on Tsushima (Thomas, P. Z. S., 1908, p. 51). This is one of the Korean forms.

FAM. RHINOLOPHIDÆ

4. *Rhinolophus cornutus cornutus* Temminck.—Mr. Fukagawa presented to me an albino specimen of this form. It was obtained near Izugahara, Tsushima, date unknown. Mr. Teraoka collected a female on Wakamiyajima, Iki Island, November 2. Holst obtained it on Tsushima (Thomas, P. Z. S., 1908, p. 49).

*5. *Rhinolophus ferrum-equinum nippon* Temminck.—An albino specimen was presented to me by Mr. Fukagawa. It was obtained near Izugahara, Tsushima. It is probably a new addition to the mammal fauna of Tsushima.

FAM. VESPERTILIONIDÆ

*6. *Myotis tsuensis* sp. nov. Diagnosis.—General color of upper and lower parts reddish brown chestnut, somewhat lighter on the lower parts.

The type specimen was collected near Izugahara, Tsushima, date unknown, and was presented to me by Mr. Fukagawa.

Measurements, in millimeters

HEAD AND BODY														PRESERVED IN:																	
TAIL		HEAD		EAR		TRAGUS		FOREARM		THUMB		3RD FINGER		4TH FINGER		5TH FINGER		TIBIA		CALCANEUM		FOOT AND CLAW		TAIL FREE FROM MEMBRANE		TOTAL LENGTH OF SKULL		BASILAR LENGTH OF SKULL		ZYGOMATIC BREADTH OF SKULL	
♂	51.5	18.5	17.8	5.5	50	11.5	75	64.5	63.5	23	26	12	2.5	18	16	11	N. Kuroda's coll. Tsushima elementary school coll.														
♀	47	19.5	16.9	5	50	10	80	66.5	67	25	25	12	2.0	—	—	—															

¹ The type specimen.

The new species is probably a resident on Tsushima. It differs from *M. macrodactylus* (Temm.) from Hondo and Kiusiu by much larger body and by the color of fur. Another species is found in Kiusiu called by the name of *M. nattererici bambinus* Thos., but it has shorter forearm, 40 mm., and the calcaneum extending about halfway between the ankle and the tail, instead of extending at least three-fourths the distance between the ankle and the tail.

*7. *Miniopterus schreibersi japonicæ* Thomas.—An adult male was collected by Mr. Teraoka on Wakamijajima, Iki, November 2. There is no difference between this specimen and specimens from Hondo, Japan.

FAM. MURIDÆ

8. *Apodemus geisha sagax* Thomas.—Mr. Teraoka obtained two specimens at Sasuna-mura, Tsushima, October 15 and at Komoda, Tsushima, October 25. Thomas reported it from the island (P. Z. S., 1908, p. 54).

9. *Apodemus speciosus speciosus* (Temminck).—Mr. Orii and Anderson obtained the specimens on Tsushima (Thomas, P. Z. S., 1908, p. 53). Mr. Orii obtained it on Iki Island.

10. *Micromys minutus aokii* subsp. nov. *Micromys minutus* (Pallas), subsp., AOKI, "Nihon san Nezumika," p. 41 (1915).

Diagnosis.—Length of head and body shorter than the length of tail; under parts of body pure white, hairs without any slate color at base; upper parts uniform russet brown; lower rump, base of tail as well as side of body rufous color; border of upper and lower parts very well defined; ear covered with russet hairs; hand and foot covered with very pale yellowish hairs; tail long and uniform pale yellowish-brown with short hairs; number of tubercles 5 on fore foot and 6 on hind foot.

The type and an adult female specimen with 5 embryos, were obtained by Mr. Y. Utano near Izugahara, Tsushima, October 29, 1920, and were sent to me by him.

Measurements, in millimeters

LOC.	HEAD AND BODY	TAIL	HIND FOOT	EAR	TOTAL LENGTH OF SKULL	BASILAR LENGTH OF SKULL	ZYGOMATIC BREADTH OF SKULL	SEX	MEASURED BY:
*Near Izugahara, Tsushima	—	75	14.5	8.5	18	15.5	10	♀	N. Kuroda
**Tsutsu-mura, Tsushima...	—	74	15.7	8.3	—	—	—	♀	Mr. Aoki
**Tsutsu-mura, Tsushima...	55	67	14	7	18.5	15.6	9.5	♀	Mr. Aoki
***Izugahara, Tsushima....	54	53	14.5	9	—	—	—	♂	Mr. Thomas

* Type. Measured on the moistened skin, ** measured on the specimens in alcohol and *** probably measured on the fresh skin.

Mr. Aoki ("Nihon san Nezumika"—Muridæ of Japan, pp. 41-45, 1915) described the new form but did not give it a name and he compared 7 other forms of *Micromys minutus*. The new form differs from *M. m. soricinus*, *M. m. pratensis*, *M. m. ussuricus*, *M. m. japonicus* and probably *M. m. minutus*, by the tail longer than head and body, except the specimen measured by Mr. Thomas which is almost in the same length (P. Z. S., 1908, p. 54). It differs from *M. m. pygmaeus*, by the under parts pure white instead of earthy color. It is probably most related with *M. m. flavus*, but it differs from the last form by the upper parts russet brown instead of bright yellow.

The subspecific name is given in honor of Mr. B. Aoki.

11. *Rattus norvegicus* (Erxleben).—Mr. Thomas (P. Z. S., 1908, p. 53) reported it from Tsushima. Mr. Orii sent me his observation on the rat on Tsushima as follows:—This rat is found near fresh water and sea shore in great numbers. Its holes were seen in sides of banks and grassy places among rocks. At the ebb-tide, it enters into sea water and captures shells as well as small fishes, etc. It also eats vegetable matter in the fields.

FAM. FELIDÆ

12. *Felis microtis* Milne-Edwards.—One specimen and two skins were presented to me by Messrs. Fukagawa, K. Nakayama and U. Kishihara. I have compared the specimens with one Korean example and found that there is no appreciable difference between them, except the markings are less distinct in the Tsushima specimens. Not common now on Tsushima. Mr. Thomas reported it from this island (P. Z. S., 1908, p. 52).

FAM. MUSTELIDÆ

13. *Mustelaitatsi* Temminck.—A young specimen was obtained by Mr. Teraoka on Iki Island, October 31. Mr. Orii collected specimens on the same island.

14. *Mustela sibirica* Pallas.—A young specimen was presented to me by Mr. C. Kato. It was obtained at Niimura, Tsushima, October 23. Mr. Thomas (P. Z. S., 1908, p. 53) reported it from Tsushima.

15. *Martes melampus tsuensis* (Thomas).—Mr. Fukagawa presented to me a summer skin of this interesting animal. It was obtained at Mine-mura, Tsushima, May, 1919. The head of the specimen is wholly black. Mr. Thomas (Ann. & Mag. N. H. (6), xix, p. 161, 1897; P. Z. S., 1908, p. 52) reported it from Tsushima.

16. *Cervus* (Sika) *nippon nippon* Temminck.—A head with antlers was presented to me by Mr. C. Kato. It was obtained at Niimura, Tsushima, spring of 1919. Another pair of antlers sent me by Mr. N. Yamashita. It was obtained at Tsutsu-mura, Tsushima. Mr. U. Ichimura sent me a skin which was obtained at Tatsurasan, Tsushima. Mr. Thomas (P. Z. S., 1908, p. 54) reported it from the same islands.

The following species are said to have occurred on Tsushima and Iki Islands:

? *Mus molossinus* Temminck.—Mr. Orii informed me that he obtained 3 specimens on Iki Island. They probably belong to this species. Orii's measurements are as follows:

♂ H. & B. 65 mm., tail 59 mm., hind foot 15.5 mm., ear 11.5 mm.

♂ H. & B. 59 mm., tail 55 mm., hind foot 15.0 mm., ear 12.0 mm.

♀ H. & B. 55 mm., tail 52 mm., hind foot 14.5 mm., ear 12.0 mm.

Nyctereutes sp.—Formerly abundant on Iki Island. But at present, it is said that it is almost an extinct species.

Lutra lutra (L.), subsp.—It is said that this animal is found in Tsushima and Iki Islands.

Sus sp.—Formerly abundant (about two hundred years ago) on Tsushima, but now become wholly extinct.

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